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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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09/135,804

8/18/98

Marocco

EXAMINER
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H Tran

ART UNIT	PAPER NUMBER
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1764

8

DATE MAILED:

### INTERVIEW SUMMARY

All participants (applicant, applicant's representative, PTO personnel):

(1) Athy Warren Edmonds (3) \_\_\_\_\_

(2) Ex. Hien Tran (4) \_\_\_\_\_

Date of Interview 7/18/00

Type: ☐ Telephonic ☐ Televideo Conference ☒ Personal (copy is given to ☐ applicant ☒ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No If yes, brief description: \_\_\_\_\_

Agreement ☐ was reached. ☒ was not reached.

Claim(s) discussed: 1, 11 (see attached, proposed Amdt after final)

Identification of prior art discussed: Wagner

Description of the general nature of what was agreed to if an agreement was reached, or any other comments: \_\_\_\_\_

The language of the proposed c/s was discussed.  
The Ex. 11 probably deny entry b/c of new issue.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

☒ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary. A FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

Examiner Note: You must sign this form unless it is an attachment to another form.

Hien Tran

**EXAMINER'S COURTESY COPY - - DO NOT ENTER**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN THE APPLICATION OF:

APPLICANT : GREGORY M. MAROCCO

SERIAL NO.: 09/135,804

ART UNIT: 1764

FILED : AUGUST 18, 1998

EXAMINER: H. TRAN

FOR : CATALYTIC CONVERTER AND RESONATOR COMBINATION

BOX AF  
ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

**AMENDMENT AND RESPONSE AFTER FINAL**

Sir:

This communication is responsive to the Office Action dated April 18, 2000, the time for responding thereto being on or before July 18, 2000.

Please amend the above-identified application as follows:

**IN THE SPECIFICATION**

Page 11, line 14, after "harmless products." delete --While conventional mufflers typically degrade or rust from the inside out due to moisture and condensation, the catalytic converter and resonator combination of the present invention produces higher

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temperatures, thus negating the collection of moisture or condensation within the device. This greatly reduces the degradation of the device and greatly extends the life of the present invention.--.

Page 17, line 3, after "thin", delete --(e.g., 0.010" maximum)--.

Page 21, line 19, after "the" insert --sound attenuating--.

Page 21, line 22, delete "resonator" and insert --sound attenuating--.

Page 21, line 26, delete "resonator" and insert --sound attenuating--.

Page 42, line 20; page 43, line 28; page 44, line 1; page 44, line 17; page 45, lines 2, 9, 14, 20, 21-22, and 26, change "Morocco" to read --Marocco-- (all occurrences).

#### IN THE CLAIMS

- 1 1. (Twice Amended) A catalytic converter and resonator  
2 combination device for use in an exhaust system of an internal  
3 combustion engine, whereby said device being disposed between an  
4 exhaust manifold and an exhaust tail pipe or an exhaust muffler,  
5 said device [comprising] consisting essentially of:  
6 a canister for installing in the exhaust system of the  
7 internal combustion engine, said canister [having a longitudinal  
8 axis, and] including an inlet end having a substantially conical

9 shape, a forward portion adjacent said inlet end, a rearward  
10 portion adjacent said forward portion, an outlet end having a  
11 substantially conical shape adjacent said rearward portion, a  
12 forward inner diameter, and a rearward inner diameter;

13 at least one catalytic converter element installed within said  
14 forward portion of said canister immediately adjacent said inlet  
15 end, with said catalytic converter element having an outer diameter  
16 and including a substrate having a plurality of longitudinal  
17 passages therethrough, with each of said passages being defined by  
18 a plurality of substrate walls[, said passages being parallel with  
19 the longitudinal axis of said canister];

20 a resonator element installed within said rearward portion of  
21 said canister, with said resonator element having a hollow core, a  
22 forward end, a rearward end, an outer diameter, and a plurality of  
23 sound attenuating perforations formed radially therethrough;

24 said outer diameter of said resonator element being smaller  
25 than said rearward inner diameter of said canister, and defining a  
26 sound attenuating plenum therebetween; and

27 said inlet end of said canister, said catalytic converter  
28 element, said hollow core of said resonator element, and said  
29 outlet end of said canister all being axially aligned [along said  
30 longitudinal axis] with one another for providing straight through  
31 flow of engine exhaust therethrough.

1           11. (Twice Amended) A catalytic converter and resonator  
2 combination device for use in an exhaust system of an internal  
3 combustion engine, whereby said device being disposed between an  
4 exhaust manifold and an exhaust tail pipe or an exhaust muffler,  
5 said device [comprising] consisting essentially of:

6           a canister for installing in the exhaust system of the  
7 internal combustion engine, said canister [having a longitudinal  
8 axis, and] including a pair of inlets each having a substantially  
9 conical shape, a forward portion adjacent said inlets, a rearward  
10 portion adjacent said forward portion, a pair of outlets each  
11 having a substantially conical shape adjacent said rearward  
12 portion, a forward inner circumference, and a rearward inner  
13 diametery;

14           at least one catalytic converter element installed within said  
15 forward portion of said canister immediately adjacent said inlet  
16 end, with said catalytic converter element having an outer  
17 circumference and including a substrate having a plurality of  
18 longitudinal passages therethrough, with each of said passages  
19 being defined by a plurality of substrate walls[, said passages  
20 being parallel with the longitudinal axis of said canister];

21           a first and a second resonator element installed within said  
22 rearward portion of said canister, with each said resonator element  
23 having a hollow core, a forward end, a rearward end, an outer  
24 diameter, and a plurality of sound attenuating perforations

25 therethrough, with each said resonator element being disposed  
26 alongside one another;  
27 said outer diameter of each said resonator element being  
28 smaller than said rearward inner diameter of said canister, and  
29 defining a sound attenuating plenum therebetween; and  
30 said inlets of said canister, said catalytic converter  
31 element, said hollow core of each said resonator element, and said  
32 outlets of said canister all being axially parallel to one another  
33 [and said longitudinal axis] for providing straight through flow of  
34 engine exhaust therethrough.

1 21. (Amended) A catalytic converter and resonator combination  
2 device for use in an exhaust system of an internal combustion  
3 engine, whereby said device being disposed between an exhaust  
4 manifold and an exhaust tail pipe or an exhaust muffler, said  
5 device [comprising] consisting essentially of:  
6 a canister for installing in the exhaust system of the  
7 internal combustion engine, said canister [having a longitudinal  
8 axis, and] including at least one inlet having a substantially  
9 conical shape, a forward portion adjacent said at least one inlet,  
10 a rearward portion adjacent said forward portion, at least one  
11 outlet having a substantially conical shape adjacent said rearward  
12 portion, a forward inner circumference, and a rearward inner  
13 diameter;

14           at least one catalytic converter element installed within said  
15 forward portion of said canister immediately adjacent to said inlet  
16 end, with said catalytic converter element having an outer  
17 circumference and including a substrate having a plurality of  
18 longitudinal passages therethrough, with each of said passages  
19 being defined by a plurality of substrate walls[, said passages  
20 being parallel with the longitudinal axis of said canister];

21           at least one resonator element installed within said rearward  
22 portion of said canister, with said at least one resonator element  
23 having a hollow core, a forward portion, a rearward portion, an  
24 outer diameter, and a plurality of sound attenuating perforations  
25 formed radially through said forward portion thereof, with said  
26 rearward portion thereof being devoid of perforations therethrough;

27           said outer diameter of said at least one resonator element  
28 being smaller than said rearward inner diameter of said canister,  
29 and defining a sound attenuating plenum therebetween;

30           said at least one inlet of said canister, said at least one  
31 catalytic converter element, said hollow core of said at least one  
32 resonator element, and said at least one outlet end of said  
33 canister all being axially aligned [along said longitudinal axis]  
34 with one another for providing straight through flow of engine  
35 exhaust therethrough;

36           said rearward portion of said at least one resonator element  
37 extending outwardly beyond said at least one outlet of said  
38 canister; and

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39           said at least one resonator element being selectively axially  
40   positionable within said canister for selectively attenuating  
41   exhaust sound frequencies in a predetermined sound frequency range.

**REMARKS**

Upon entry of the proposed amendment, Claims 1, 11 and 21 will be amended. Independent Claims 1, 11 and 21, with Claims 2-10, 12-20 and 22-30 respectively depending therefrom will remain for consideration.

In the recent Office Action the Examiner objected to the specification because of informalities. Applicant has amended the specification at page 21, lines 19, 22 and 26 by including --sound attenuating-- in order to maintain consistency throughout the disclosure. In addition, the Examiner objected to the amendment filed 2/15/00 under 35 U.S.C. 132 because it introduces new matter. Applicant has deleted the sentences added to page 11, line 14, after "harmless products." Also, the parenthetical dimension "(e.g., 0.010" maximum)" has been deleted at page 17, line 3. Further, the Examiner has rejected Claims 1-30 under 35 U.S.C. § 112, first and second paragraphs, as containing subject matter which was not described in the original specification and as being indefinite. Applicant has cancelled the added limitations in Claim 1, lines 8, 17-18 and 29, as well as the similar limitations of Claims 11 and 21. With respect to the Examiner's rejection of Claims 7, 17 and 27, the "width" refers to the size of each passage



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through the catalytic converter element, and is clearly demonstrated in Fig. 6 as compared to the Prior Art shown in Fig. 7 (cf. original specification pages 16-19). Likewise, with respect to the Examiner's rejection of Claim 11, line 32 as to the meaning of "axially parallel to one another" and where is such shown in the drawings, Applicant directs attention to the original specification, beginning at page 31, along with Figs. 4 and 5, the disclosure sets forth and shows the "axially parallel to one another" resonators of Claim 11. Applicant respectfully submits that Claims 1-30, as amended, meet the specific requirements of 35 U.S.C. § 112, first and second paragraph.

Applicant will advance arguments hereinbelow to illustrate the manner in which the presently claimed invention is patentably distinguishable from the cited and applied prior art. Reconsideration of the present application is respectfully requested.

In the Final Office Action the Examiner rejected Claims 1, 24, 6, 9, 21, 24-26 and 29 under 35 U.S.C. § 102(b) as being anticipated by Wagner. This rejection is respectfully traversed. Applicant's invention is directed to a combined catalytic converter and resonator for use in internal combustion engine exhaust systems. The combined converter and resonator may be used with or without an additional muffler system. The combined converter and resonator of the presently claimed invention requires the structure *consists* of a canister having an inlet end, a forward portion adjacent to the inlet end, a rearward portion adjacent to the

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forward portion, an outlet end adjacent said rearward portion. The forward portion has a forward inner diameter, and the rearward portion has a rearward inner diameter. The inlet end includes a conical shape, and the outlet end has a conical shape. At least one catalytic converter element installed within the forward portion of the canister immediately adjacent the inlet end. The catalytic converter element having an outer diameter. Also, the converter element includes a substrate having a plurality of longitudinal passages therethrough, with each of the passages being defined by a plurality of substrate walls. The resonator element is installed within the rearward portion of the canister. The resonator element has a hollow core, a forward end, a rearward end, an outer diameter, and a plurality of sound attenuating perforations formed radially therethrough. The outer diameter of the resonator element is smaller than the rearward inner diameter of the canister, thereby defining a sound attenuating plenum therebetween. The inlet end of the canister, the catalytic converter element, the hollow core of the resonator element, and the outlet end of the canister all are axially aligned with one another for providing straight through flow of engine exhaust therethrough.

On the other hand, the catalytic converter and muffler system of Wagner et al. is directed to a catalytic converter and muffler combination device for use diesel internal combustion engines. Eventhough Wagner et al. alludes to the use with gasoline internal combustion engines, Wagner et al. is silent as to how to accomplish

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this. The device in Wagner et al. has an outer casing, a plurality of resonators, a plurality of impermeable flanges, and a catalytic converter element. The arrangement of these components provide a plurality of chambers or plenums, defined by the casing and flanges (in pairs) surrounding the plurality of resonators. These plenums allow for the expansion of the exhaust gases and engine noises to enter, forming a pressurized "dead-spaces". These dead-spaces utilize the physical phenomenon of harmonic cancellation to attenuate the engine noises. The phenomenon occurs by the virtue of pressurized dead-spaces reflecting the noises trapped therein back onto the subsequent engine exhaust gases and noises. In diesel engines this "so-called" back pressure enhances the engine performance by the virtue of the operation of the diesel engine. Consequently, this type of device would not work well with a standard gasoline engine. In addition, the dead-spaces of Wagner et al. do not allow the exhaust gases to exit the device until the engine has been shut down, removing the source of incoming pressure. Upon the removal of the incoming pressure, the back pressure of the dead-space gases pass back through the resonators in order to escape into the atmosphere. Depending upon the diesel engine fuel by-products found in the exhaust gases, once the incoming pressure is removed the trapped dead-space gases may ignite causing a "back-fire". Such back-fires may cause injury to one of more of the muffler, engine, operator and any other persons nearby. Thus,

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Applicant submits that the patent to Wagner et al. is insufficient as anticipatory reference against the instant claims.

The presence of the conical shape of the inlet end performs a function not present in the Wagner device. The conical inlet renders absolutely no obstructions to the exhaust gases entering into the device. In this manner, Applicant's claimed invention does not cause an initial "cool down" of the exhaust gases from the engine. The conical inlet provides an efficient dispersion due to the adjacency of the inlet end to the converter element. Thus, no inlet diffuser assembly, such as is required in the Wagner patent, is used or required in Applicant's claimed invention.

Claims 3, 5, 7, 8, 10-20, 27, 28, and 30 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of one or more of Munro, Plemons, Jr., Ignoffo, Harris, Berg et al., Lachman et al., and/or Japanese patent document no. 64-12017. This rejection is respectfully traversed. Applicant submits that the plethora of secondary references are insufficient to supplement the apparent deficiencies of the primary reference to Wagner et al. Moreover, there appears no motivation or guidance in the prior art to modify the Wagner et al. muffler in the manner suggested of record by the Examiner. Further, by modifying the muffler disclosed in Wagner et al. as suggested by the Examiner would destroy the functionability and operability of the muffler disclosed in Wagner et al.

"The mere fact that the prior art may be modified as suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification." In re Fritch, 992 F.2d 1260, 23 U.S.P.Q.2d 1730 (Fed. Cir. 1992). Under Section 103(a), there must be some objective teaching in the prior art that would have motivated one of ordinary skill in the art to arrive at the claimed invention as a whole. In re Fine, 5 USPQ2d 1596, 1599-1600 (Fed. Cir. 1988). Applicant respectfully submits that independent Claims 1, 11 and 21, and their respective corresponding dependent Claims 2-10, 12-20 and 22-30 are allowable over the prior art of record.

The claims in this application have been revised to more particularly define applicants' unique construction in view of the prior art of record. Reconsideration of the claims in light of the amendments and for the following reasons is respectfully requested.

Applicant respectfully submits that for at least these reasons, this proposed amendment will serve to render independent Claim 1, 11 and 21, along with respective dependent Claims 2-10, 12-20 and 22-30, allowable over the prior art applied of record.

Applicant respectfully submits that the amendments made herein properly respond to the outstanding Final Rejection. These amendments are intended to present claims which clearly define the instant invention over the prior art. Care has been exercised to insure that no new matter has been introduced and that no new issues have been raised. It is felt that no inordinate amount of

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time will be required on the part of the Examiner to review and consider this amendment. In the event that an appeal is filed, it is requested that this amendment be entered for purposes of appeal. This proposed amendment does not raise any new issues that require further consideration or search and is a *bona fide* effort to satisfactorily conclude the prosecution of this application.

Accordingly, it is respectfully requested that the proposed amendment be entered and that this application be favorably considered by the Examiner and passed to issue. If such is not the case, the Examiner is respectfully requested to call Applicant's undersigned attorney at the number given below in an effort to satisfactorily conclude the prosecution of this application.

Respectfully submitted,

Richard C. Litman  
Registration No. 30,868  
(703) 486-1000

RCL:wse